UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT

PROPOSED FEDERAL RESERVED WATER RIGHTS SUMMARY

(as presented to Reserved Water Rights Compact Commission in 12/9/2011 letter)

The United States Department of Interior, Bureau of Land Management (BLM) is proposing the following quantification of its reserved water rights for the Upper Missouri River Breaks National Monument. These reserved water rights were created by Presidential Executive Order when the Monument was designated in 2001. The primary purpose for the reserved water rights is protect the amount of water necessary to protect the water dependent objects of biological interest within the Monument, such as the cottonwood gallery forests on the Judith River and Arrow Creek. All valid existing senior (pre-2001) water rights will be protected by the Compact agreement to the extent that they have been used historically. The proposal also provides for future water development in the basins, subject to some proposed limits. The details of BLM's proposal are as follows:

Judith River Federal Reserved Water Right:

The BLM requests an instream flow for those flows remaining in the river at the time of the UMRBNM proclaimation, subject to an amount for future development by the State of Montana.

1. **Base Flow of 160 cfs:** The BLM requests a base flow consistent and concurrent with the Montana Department of Fish, Wildlife and Parks (MT FWP) state reservation of 160 cubic feet per second (cfs) as measured at the stream gage on the Judith River (USGS station number 06114700) is requested as the basis for the United States to place a call on junior water rights and as an additional limit to new appropriations. The purpose of maintaining instream flow within the channel is for maintaining the shallow, alluvial groundwater. The instream flow value of 160 cfs was chosen for consistency with the State of Montana instream flow reservation already in place. Moreover, late summer low flows often drop to around 160 cfs, particularly during periods of drought. Existing, mature cottonwoods have survived based upon groundwater levels maintained by these types of flows.
2. **No new mainstem storage:** The BLM requests no new mainstem storage structures will be permitted on the Judith River. Maintaining the ability of the Judith River to flood within a relative range of historic frequencies is critical for maintenance of the cottonwood forest. As compared to off-site storage structures or storage structures on smaller order side streams, a mainstem storage structure has the ability to significantly attenuate the magnitude of flow entering the structure and considerably decrease the frequency at which certain magnitude flows occur. Just as important, mainstem reservoirs can disrupt the sediment regime, which is vital for the geomorphic processes that create depositional features suitable for cottonwood establishment.
3. **Cap on future development:** The BLM requests a cap on new development at 1,990 cfs, which represents the difference between 160 cfs and the median peak discharge for the Judith River Basin (2,150 cfs). This Judith River Available Water Supply (JRAWS) for new appropriations would be based upon flow rate as opposed to volume. While much of the water the BLM hopes to protect is not realistically available for appropriation because it is not available on a consistent basis; the BLM believes that it is a possible to make the flow rate between base flow and the median peak discharge available for development without severe impacts to the Monument values. The median peak discharge was chosen as the upper limit for the JRAWS because these flows would be available on a somewhat regular basis (every couple of years). Allowing for development within these limits would be consistent with Montana water law. Furthermore, although additional development may decrease the flooding frequency and potentially lead to a flatter hydrograph (approximately half the years), the attenuation of much larger flow events (i.e. 6,000 to 12,000 cfs) would have a much smaller effect on riparian processes than the attenuation

of smaller flood flows. The higher flood flows have been shown to be the most effective in creating conditions for extensive cottonwood recruitment. The regression equation estimates for the median peak discharge might be considered near the lower range of appropriate estimates (Sando, written communication, provisional – in review and subject to revision). However, BLM used them for the proposal because the flood-frequency relations for the regression equations provide the most appropriate estimates for all recurrence intervals because they are associated with detailed and reliable error estimates.

4. **New diversions only when base flow present and "ramped" operation of large diversions:** To prevent sudden, large drops in stream flow, BLM requests that terms and conditions be placed on new direct from source diversions such as pumps, ditches, and canals that would only allow the appropriation of water at such times that the base instream flow requirements are being satisfied (160 cfs). In addition, the BLM requests that permits for direct from source diversions greater than 10 cfs be conditioned to operate under a "ramped diversion" regime that prevents an increase in diversion of more than 10 cfs per day or 20 percent of the total allowed diversion, whichever is greater, in any 24- hour period to prevent sudden, drastic drops in the natural recession rate of the river. The purpose of the ramped diversion regime for large diversions is to protect the hydrograph from water diversions that can individually create drastic changes in flow rate. So for example, a new 100 cfs diversion would have to ramp up to 100 cfs at 20 cfs intervals over a 5-day period.
5. **Additional requirements for off-stream storage reservoir applications:** Of additional concern to the BLM is the development of off-stream storage structures larger than 15 acre-feet. While these reservoirs, cumulatively, may not take a significant percentage of the basin's annual volume yield- they take all of their individual amounts at the same time (during runoff events). The BLM requests that applications for storage reservoirs larger than 15 acre-feet capacity be required to include hydrologic analysis showing the expected 2-year recurrence interval peak flow for the location. This flow number will be subtracted from the JRAWS. This would eventually cap the total amount of storage development in the watersheds, but it would allow for the development to occur flexibly (i.e. many smaller reservoirs or fewer larger ones) as needed by the users within the basin.
6. **Small stock pond and domestic/livestock well exemptions:** Small stock reservoirs (less than 15 acre-feet capacity) and domestic and stockwater wells less than 35 gallons per minute to 10 acre-feet per year would be exempted from the development cap based on the MCA 85-2-306 permit exceptions. Should the MCA 85-2-306 exceptions be changed to a less restrictive standard, or should these exceptions to permit requirements be removed from MCA; these developments would become a part of the State's available development cap from that point forward.

Arrow Creek Federal Reserved Water Right Proposal Summary:

The BLM requests an instream flow water right for those flows remaining in the river at the time of the UMRBNM proclamation, subject to an amount for future development by the State of Montana.

1. **Base flows of 5 cfs for Arrow Creek between March 1 and July 31:** The BLM is requesting a base flow for Arrow Creek of 5 cubic feet per second from March 1 to July 31 of each year that would be the basis for the BLM to place a call on junior water rights. The purpose of maintaining instream flow within the channel is for maintaining the shallow, alluvial groundwater. Although Arrow Creek flows year round some years, many years it goes dry by late summer, particularly during drought years. Arrow Creek has historically maintained a base flows from at least March 1 to July 31 in most years.
2. **No new mainstem storage structures on Arrow Creek:** The BLM requests no new mainstem storage structures be permitted on Arrow Creek. Maintaining the ability of Arrow Creek to flood

within a relative range of historic frequencies is critical for maintenance of the cottonwood forest. As compared to off-site storage structures or storage structures on smaller order side streams, a mainstem storage structure has the ability to significantly attenuate the magnitude of flow entering the structure and considerably decrease the frequency at which higher magnitude flows occur. Just as important, mainstem reservoirs can disrupt the sediment regime, which is vital for the geomorphic processes that create depositional features suitable for cottonwood establishment.

3. **Cap on future development in Arrow Creek:** The BLM requests a cap on new development at 457 cfs, which represents the difference between 5 cfs base flow and the median peak discharge for Arrow Creek upstream of the mouth of Flat Creek (462 cfs). The Arrow Creek Available Water Supply (ACAWS) for new appropriations would be based upon flow rate as opposed to volume.
4. **Restrictions of "direct from source" diversions from Arrow Creek:** Future direct from source appropriations may only be used when the base instream flow requirement (5cfs between March 1 and July 31) is being satisfied. BLM would request that future permits for these developments be conditioned with this requirement.
5. **"Ramped" operation of large diversions:** BLM requests that direct from source diversions greater than 10 cfs be required to operate under a "ramped diversion" regime that prevents an increase in rate of diversion of more than 10 cfs per day, or 20 percent of the total allowed diversion (whichever is greater), in any 24-hour period.
6. **Additional requirements for larger off-stream reservoir applications:** Applications for storage reservoirs larger than 15 acre-feet capacity must include hydrologic analysis showing the expected 2-year recurrence interval peak flow. This 2-year recurrence interval peak flow would be the amount subtracted from the ACAWS for these developments.
7. **Exemptions for small stock ponds and domestic/livestock wells:** Small stock reservoirs (less than 15 acre-feet capacity) and domestic and stockwater wells less than 35 gallons per minute to 10 acre-feet per year would be exempted from the development cap based on the MCA 85-2-306 permit exceptions. Should the MCA 85-2-306 exceptions be changed to a less restrictive standard, or should these exceptions to permit requirements be removed, these developments would become a part of the State's available development cap.

Proposal Requests Common to Both Basins:

1. The BLM requests that a State water right enforcement project be established for each of the Judith River and Arrow Creek basins, including the appointment of a water commissioner to enforce the provisions of this compact. The BLM believes that this compact proposal is reasonable and allows for a considerable amount of development; and that, if the Compact and existing water rights are enforced, it would adequately protect the values and reserved water right for the UMRBNM. Failure to enforce the compact and existing rights has the ability to adversely affect the BLM's water right, particularly the critical base instream flows; thus the request for an enforcement project in these basins.
2. Groundwater appropriations **not** exempted from permit requirements under the MCA 85-2-306, and that directly influence surface water flows, will be subtracted from the available water supply.
3. Instream flow applications for non-consumptive uses, pursuant to the MCA 85-2-316, will **not** be subtracted from the available water supply.
4. For each of the Judith River and Arrow Creek basins, once the available water supply for that basin is exhausted, the basin will be closed to new applications for appropriation.